

# THE FIRST ALBINO WELS, *SILURUS GLANIS* LINNAEUS, 1758, FROM FRANCE, WITH A REVIEW OF ALBINISM IN CATFISHES (TELEOSTEI: SILURIFORMES)

by

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**ABSTRACT.** - The first record of an albino wels, *Silurus glanis*, from France is reported from the Loire River near La Charité where it was caught on 17 August 1989. Albinism in *Silurus glanis* and in all catfishes, order Siluriformes, is reviewed.

**RÉSUMÉ.** - La première mention d'un silure glane albinos, *Silurus glanis*, en France est attestée par la capture d'un spécimen pêché en aval de La Charité-sur-Loire le 17 août 1989. Les cas d'albinisme chez *Silurus glanis* et chez tous les autres poissons-chats, ordre des Siluriformes, sont passés en revue.

**Key-words.** - Siluriformes, Siluridae, *Silurus glanis*, France, Loire River, Albinism.

In the family Siluridae, only albino specimens of *Silurus glanis* Linnaeus, 1758 are well known, and seem to be found frequently in eastern Europe. Albino and semi-albino *S. glanis* have been recorded from the Donau River near Vienna (Heckel and Kner, 1858; Koller, 1926), the Donau by Vilshofen (Mühlen, 1911), Nowograd on the Narew River, Poland (Scheuring, 1929), the Volga (Soltnisky, 1902), and the Elbe River system near Berlin (Hilgendorf, 1890; Vogt and Hofer, 1909; Mohr, 1957). Vogt and Hofer (1909) also report one from Salzburg, and have a color drawing of a semi-albino which is apparently from there. They also called albino wels "goldwels". Mihalik (1982) shows a photograph of a 114 cm albino wels, but does not state where it came from. Steindachner and Döderlein (1885), in a footnote on page 198, mention that albino *Silurus asotus* Linnaeus, 1758 are rarely seen in Japan, but do not refer to a specimen, locality or reference.

The first albino wels caught in France was caught in the Loire River above the city of La Charité on 17 August 1989 by M. Michel Berthurel, and was brought to us alive. In coloration it was pure white with a slight golden sheen dorsally, and the eyes were red (Fig. 1). It was extremely light sensitive, hiding during the daytime and becoming active and feeding only at night in the dark. In the aquarium it fed readily upon pieces of fish flesh. It died of unknown causes on 6 March 1990, and is now preserved in the fish collection of the Muséum national d'Histoire naturelle, MNHN 1989.1274. At the time of death, it was 151 mm in standard length, and weighed 28 g.

Albinism in catfishes, order Siluriformes, appears to be quite rare (Oliver, 1969; Dahlberg, 1970). We have been able to document albinos or semi-albinos in only 33 species of nine families, out of the 32 families and over 2200 species known (Burgess, 1989). At least in *Ictalurus punctatus* it has been shown that this albinism is linked to one recessive autosomal gene (Bondari, 1981).

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Besides the family Siluridae, in the Ariidae, an albino *Arius jella* Day, 1877 was reported from Diamond Harbor, West Bengal, India (Gupta and Bhowmik, 1958). Pillai and Somvanshi (1979) reported on an albino *Arius caelatus* Valenciennes, 1840 from off of India in a trawl haul at 18°50'N to 19°N by 72°30'E to 72°40'E; an albino *Arius dussumieri* Valenciennes, 1840 (as *Tachysurus dussumieri*) was reported off of Mandapam in Palk Bay, India by Rajapandian and Sundaram (1967); and an albino *Arius tenuispinnis* Day, 1877 (as *Tachysurus tenuispinnis*) was reported from Malpe Fish Centre, India by Baragi *et al.*, (1976).

In the Callichthyidae, albino *Corydoras aeneus* (Gill, 1858) and *C. paleatus* (Jenyns, 1842) have been caught in south-eastern Brazil (Fach, 1963; Burgess, 1989), and are now very common in the pet trade through captive breeding (Emmens and Axelrod, 1968; Currier and Smith, 1969; Burgess, 1989). Also an albino *Hoplosternum thoracatum* (Valenciennes, 1840) was reported from Rio de la Plata (Taberner *et al.*, 1976).

In the Clariidae, an albino *Clarias anguillaris* (Linnaeus, 1758) was reported from the Nile River at Cairo (Panceri, 1873); Hora (1926) reported an albino *Clarias batrachus* (Linnaeus, 1758) from Midnapur, India and Fowler (1934) reported albino *C. batrachus* being fairly common at Chieng Mai, Siam (Thailand), it is now very common in the pet trade through captive breeding (Emmens and Axelrod, 1968; Novak, 1983; Burgess, 1989), and is now found in Florida by introduction (Oliver, 1969). Na-Nakorn (1988) reported on albino *Clarias macrocephalus* Günther, 1864 from Thailand. Also, in the fish collection of the Museum national d'Histoire naturelle, there is an albino specimen of *Clarias camerunensis* Lönnberg, 1895, MNHN 1928.337 (325 mm standard length), collected by Th. Monod in 1928 from the Nteru River at Moini, Cameroun, apparently never reported before. Vogt (1973) shows a photograph of an unidentified albino specimen of *Clarias* and also does not give its origin.

In the Heteropneustidae, an albino *Heteropneustes fossilis* (Bloch, 1794) was reported from India (Baruah, 1966).

In the family Ictaluridae, numerous species have been reported as albinos. An albino *Ictalurus catus* (Linnaeus, 1758) was reported from Lake Jessie, Florida (McLane, 1950), an albino *Ictalurus furcatus* (LeSueur, 1840) was reported from the Mississippi River, St. Charles Parish, Louisiana (Rutherford *et al.*, 1990), and albino *Ictalurus nebulosus* (Lesueur, 1819) were reported from Kemah Lake, New Jersey (Atz, 1953). Albino *Ictalurus punctatus* (Rafinesque, 1818) have been reported from many localities: Sioux City, Iowa (Aitken, 1937), the Mattaponi and Pamunkey Rivers in Virginia (Menzel, 1944; 1958), and the Mississippi River [Emmens and Axelrod, 1968; as *I. lacustris* (Walbaum, 1792)], and it is also very common in the pet trade from captive breeding (Burgess, 1989). Westerman and Birge (1978) reported that under fish farming conditions there was a considerable increase in the percentage of albino *I. punctatus* when exposed to heavy metals, and suggested that heavy metal pollution might be the cause for high numbers of albinos under natural conditions. In areas where high numbers of albino catfish are caught, tests should be done to see if indeed there is heavy metal pollution in the area, and, if so, presence of high numbers of albino catfish in an area might be indicators of heavy metal pollution. Albino *Ictalurus melas* (Rafinesque, 1820) were collected in a slough off Cahokia Creek Diversion Channel, Madison Co., Illinois (Hicks, 1978). In the genus *Noturus*, Holder and Ramsey (1972) reported an albino *N. gyrinus* (Mitchill, 1817) from a slough of the Suwanee River, Clinch Co., Georgia and Stasiak and Evans (1978) reported one from Carter Lake, Douglas Co., Nebraska, Southwick and Norman (1987) reported an albino *N. insignis* (Richardson, 1836) from Nottoway River, Nottoway County, Virginia, and Platania *et al.*, (1986) report on an albino *N. flavus* Rafinesque, 1818 from St. Vram Creek, South Platte River System, Boulder Co., Colorado.

In the Loricariidae, Emmens and Axelrod (1968) show a color photograph of an albino "*Plecostomus* sp." from tropical South America. The same



photograph is shown in Burgess (1989) labelled as *Hypostomus plecostomus* (Linnaeus, 1758) along with a photograph of a semi-albino of the same species. Sazima and Pombal-Jr (1986) report an albino *Hypostomus* sp. from Rio Piracicaba, Brazil. Monteiro (1965) reported numerous albino and semi-albino individuals of *Rhinelepis aspera* Von Spix, 1829 from the Rio Piracicaba in Brazil, and Luengo (1965) reported one from Uruguay.

In the Malapteruridae, an albino *Malapterurus electricus* (Gmelin, 1789) was reported from tropical Africa (Burgess, 1989).

In the Mochokidae, a semi-albino *Synodontis greshoffi* Schilthuis, 1891 was reported from the pet trade, of unknown origin (Price, 1987) and albino *Synodontis schall* (Schneider, 1801) have been reported from Africa (Burgess, 1989).

In the Pimelodidae, an albino *Paulicea luetkeni* (Steindachner, 1875) was reported from the Rio Piraña, Argentina (Taberner *et al.*, 1976), an albino *Phractocephalus hemiopterus* (Schneider, 1801) from the Amazon (Burgess, 1989), an albino *Rhamdella minuta* (Lütken, 1875) from São Paulo, Brazil (Sazima and Pombal-Jr, 1986), and an albino *Pseudopimelodus* sp. was reported in the pet trade from an unknown locality (Burgess, 1989).

In the Plotosidae, Larson and Martin (1990) report on white *Porochilus rendahli* (Whitley, 1928) from Scott's Creek, Australia, however these do not seem to be complete albinos, as although their skin is totally white, their eyes are still dark colored and not red as in other true complete albinos.

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## REFERENCES

- AITKEN W.W., 1937. - Albinism in *Ictalurus punctatus*. *Copeia*: 64.  
 ATZ J.W., 1953. - Fishes come in white, too. *Animal Kingdom*, 56: 51-55.  
 BARAGI V.M., YARAGAL R.B. & P.S.B.R. JAMES, 1976. - On an albino of the marine cat fish, *Tachysurus tenuispinis* (Day). *Matsya*, 2: 82.  
 BARUAH M.C., 1966. - A case of albinism in *Heteropneustes fossilis* (Bloch). *J. Bombay Nat. Hist. Soc.*, 65(2): 495-496.  
 BONDARI K., 1981. - A study of abnormal characteristics of channel catfish and blue tilapia. *Proc. S.E. Assoc. Fish Wildlife Agencies*, 35: 568-580.  
 BURGESS W.E., 1989. - An atlas of freshwater and marine catfishes. A preliminary survey of the Siluriformes. T.F.H. Publications, Inc., Neptune City, New Jersey, 784 pp.  
 CURRIER J. & M. SMITH, 1969. - The beginner's guide to *Corydoras*. *The Aquarium* (Philadelphia), 3(1): 4-5, 70-78.  
 DAHLBERG M.D., 1970. - Frequencies of abnormalities in Georgian estuarine fishes. *Trans. Amer. Fish. Soc.*, 99: 95-97.  
 EMMENS C.W. & H.R. AXELROD, 1968. - Catfish. T.F.H. Publications, Inc., Neptune City, New Jersey, 96 pp.  
 FACH D., 1963. - Albinotische *Corydoras paleatus*. *Aquar. Terr. Zeits.*, 16(8): 225-227.  
 FOWLER H.W., 1934. - Zoological results of the Third deSchauensee Siamese Expedition. Part I. Fishes. *Proc. Acad. Nat. Sci. Philadelphia*, 86: 87.  
 GUPTA P.D. & R.M. BHOWMIK, 1958. - An interesting case of albinism in *Arius jella* Day from India. *Sci. Cult.*, 24(6): 283.  
 HECKEL J. & R. KNER, 1858. - Die Süßwasserfische der streichen Monarchie. Verlag von Wilhelm Engelmann, Leipzig, 312 pp.  
 HICKS D., 1978. - A population of albino black bullheads, *Ictalurus melas*. *Copeia*: 184-185.  
 HILGENDORF F., 1890. - Ichthyologische Mittheilungen, betreffend *Petromyzon*, *Cepola*, *Salarias*, *Leucopsarion* und *Silurus*. *Sitz. Ber. Gesell. naturforsch. Freunde, Berlin*, 1890: 12-18.  
 HOLDER D.R. & J.S. RAMSEY, 1972. - A case of albinism in the tadpole madtom, *Noturus gyrinus*. *Trans. Amer. Fish. Soc.*, 101 (3): 566-567.

- HORA S.L., 1926. - An albino magur *Clarias batrachus*. *J. and Proc. Asiatic Soc. Bengal*, New Series, 22(18): 131-132.
- KOLLER O., 1926. - Ein albinotischer Wels (*Silurus glanis*) aus der Donau bei Wien. *Zoolog. Anz.*, 69: 333.
- LARSON H.K. & K.C. MARTIN, 1990. - Freshwater fishes of the Northern Territory. Northern Territory Museum of Arts and Sciences, Darwin, Australia, 102 pp.
- LUENGO J.A., 1965. - Un caso de albinismo en *Rhinelepis aspera* Agassiz, del Uruguay. *Neotropica*, 11(35): 51-52.
- McLANE W.M., 1950. - An albinistic *Ictalurus catus* from Florida. *Copeia*: 149.
- MENZEL R.W., 1944. - Albino catfish in Virginia. *Copeia*: 124.
- MENZEL R.W., 1958. - Further notes on the albino catfish. *J. Hered.*, 49: 284, 293.
- MIHALIK J., 1982. - Der Wels. A. Ziemsen Verlag, Wittenberg Lutherstadt. 71 pp.
- MOHR E., 1957. - Der Wels. A. Ziemsen Verlag, Wittenberg Lutherstadt. 43 pp.
- MONTEIRO F.P., 1965. - Caso de "albinismo" em cascudo preto (*Rhinelepis aspera* Agassiz) no Rio Piracicaba. *Anais Seg. Cong. Latino-Americano Zool.*, 2: 199-202.
- MÜHLEN M., 1911. - Ein Wels Albino. *Allg. Fisch. Zeit.*, 36(23): 517-518.
- NA-NAKORN U., 1988. - Inheritance of albinism in *Clarias macrocephalus* Günther. *Kasetsart J. Nat. Sci.*, 22: 221-224. (In Thai with English abstract)
- NOVAK J., 1983. - Albino *Clarias batrachus* (Pisces Clariidae). *Vest. Cesk. Spolec. Zoolog.*, 47: 48-50.
- OLIVER M., 1969. - Why the albino is rare in nature. *Aquarium*, 2(3): 6-7, 43-45.
- PANCERI P., 1873. - Intorno all'albinismo del *Clarias anguillaris*. *Rendiconto dell'Accademia delle Scienze fisiche e matematiche*, 12(1): 110-114.
- PILLAI S.K. & V.S. SOMVANSI, 1979. - A case of complete albinism in marine cat fish *Arius caelatus* (Valenciennes). *Ind. J. Fish.*, 26: 240-241.
- PLATANIA S.P., CUMMINGS T.R. & K.J. KEHMHER, 1986. - First verified record of the stonecat, *Noturus flavus* (Ictaluridae), in the South Platte River system, Colorado, with notes on an albinistic specimen. *Southw. Nat.*, 31:553-555.
- PRICE D.J., 1987. - Semi-albino *Synodontis greshoffi*. *Catfish Assoc. Gr. Brit. Mag.*, 56: 3-4.
- RAJAPANDIAN M.E. & K.S. SUNDARAM, 1967(1968). - A case of complete albinism in the marine cat-fish *Tachysurus dussumieri* (Cuvier and Valenciennes). *J. Mar. Biol. Assoc. India*, 9: 194-195.
- RUTHERFORD D.A., IHRIG J.W. & Y.J. LEE, 1990. - Albinism in *Ictalurus furcatus* (Osteichthyes: Ictaluridae). *Copeia*: 1174.
- SAZIMA I. & J.P. POMBAL-JR, 1986. - Um albino de *Rhamdella minuta*, com notas sobre comportamento (Osteichthyes, Pimelodidae). *Rev. Braz. Biol.*, 46(2): 377-381.
- SCHEURING L., 1929. - Die welse (*Silurus glanis* und *Amiurus nebulosus*). *Hand. der Binnenfischerei Mitteleuropas*, III(3): 142-158.
- SOLTNISKY N., 1902. - Der russische Wels in Freiheit und in Aquarium. *Natur u. Haus.*, 10: 45-47, 82-84.
- SOUTHWICK R.S. & M.D. NORMAN, 1987. - First record of an albinistic margined madtom (*Noturus insignis*). *Virginia J. Sci.*, 38(1): 42.
- STASIAK R.H. & P.K. EVANS, 1978. - An albinistic madtom, *Noturus gyrinus* (Osteichthyes: Ictaluridae), from Nebraska. *Southw. Nat.*, 22: 539.
- STEINDACHNER F. & L.D. DERLEIN, 1885. - Beiträge zur Kenntniss der Fische Japan's. III. *Denkschr. Kaiserlich. Akad. Wiss.*, 49: 171-212, 7 pls.
- TABERNER R., FERNANDEZ SANTOS J.O. & J.O. CASTELLI, 1976. - Un "manguruyu" albino, *Paulicea luetkeni* (Steindachner 1876) Eigenmann 1910. *Physis* (Buenos Aires), 35: 121-123.
- VOGT C. & B. HOFER, 1909. - Die Süßwasserfische von Mittel-Europa. Verlag von Wilhelm Engelmann, Leipzig. pp. 470-477, plate 27, fig. 2.
- VOGT D., 1973. - Sture Welse. *Aquar. Terr. Zeits.*, 26: 298-301.
- WESTERMAN A.G. & W.J. BIRGE, 1978. - Accelerated rate of albinism in channel catfish exposed to metals. *Progr. Fish Cult.*, 40(4): 143-146.

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Fig. 1. - Photograph of albino *Silurus glanis* alive in an aquarium at the Muséum national d'Histoire naturelle, caught from the Loire River near La Charité, France.